

WHAT IS CLAIMED IS:

1. A dielectric filter comprising:  
a dielectric block having at least one resonance  
electrode,  
a ground electrode on the dielectric block,  
5 input and output terminal electrodes to connect  
the dielectric filter to external circuits, and  
a separated electrode provided on an outer face  
of the dielectric block, not connected to the input  
and output terminals or the ground electrode,  
10 the separated electrode being connected to the  
resonance electrode via a capacitance.

2. The dielectric filter according to claim 1,  
wherein either a step or a cavity is provided on the  
dielectric block, and the separated electrode is  
provided on the step or in the cavity.

3. The dielectric filter according to claim 1,  
wherein a voltage controllable reactance element and a  
circuit element for controlling the reactance element  
are electrically connected to the separated electrode.

4. The dielectric filter according to claim 3,  
wherein either a step or a cavity is provided on the  
dielectric block, and the separated electrode is  
provided on the step or in the cavity.

5. The dielectric filter according to claim 3, wherein either a step or a cavity is provided on the dielectric block, and the separated electrode is provided on the step or in the cavity.

6. The dielectric filter according to claim 3, wherein the dielectric block, the reactance element, and the circuit element are mounted onto a circuit substrate, and the reactance element and the circuit element are electrically connected to the separated electrode via a circuit pattern provided on the circuit substrate.

7. The dielectric filter according to claim 1, wherein the separated electrode and the input and output terminal electrodes are provided so as to extend on at least two outer faces of the dielectric block.

8. The dielectric filter according to claim 1, wherein the separated electrode and the input and output terminal electrodes are provided at least on the under face of the dielectric block.

9. The dielectric filter according to claim 1, wherein the number of the separated electrodes is at least two, and the at least two separated electrodes are electrically connected to each other by a coupling

5 adjustment element.

10. A dielectric filter comprising:

a dielectric block having at least one resonance hole,

the dielectric block having an outer surface

5 including a bottom face,

a conductor inserted into the resonance hole the conductor being insulated from an inner conductor of the resonance hole,

a voltage-controllable reactance element

10 electrically connected to the conductor, and

a circuit substrate upon which the reactance element is mounted, disposed on the outer surface of the dielectric block excluding the bottom face thereof.

11. The dielectric filter according to claim 10, wherein the voltage controllable reactance element is one of a PIN diode, a field effect transistor, and a variable capacitance diode.

12. A dielectric filter comprising:

a dielectric block having at least one resonance hole,

the dielectric block having an outer surface

5 including a bottom face,  
a conductor electrically connected to an inner  
conductor of the resonance hole,  
a voltage-controllable reactance element  
electrically connected to the conductor, and  
10 a circuit substrate upon which the reactance  
element is mounted, disposed on the outer surface of  
the dielectric block excluding the bottom face  
thereof.

13. The dielectric filter according to claim 12,  
wherein the voltage controllable reactance element is  
one of a PIN diode, a field effect transistor, and a  
variable capacitance diode.

14. An antenna sharing device comprising a pair  
of filters, respective terminals of said filters being  
connected together, one of said filters being a  
dielectric filter according to any one of claims 1, 3,  
5 10 and 12.

15. A communication device comprising a high-  
frequency circuit comprising one of a transmitting  
circuit and a receiving circuit, said circuit  
including a dielectric filter according to any one of  
5 claims 1, 3, 10 and 12.

16. A communication device comprising a high-frequency circuit comprising one of a transmitting circuit and a receiving circuit, said circuit being connected to a dielectric filter according to any one  
5 of claims 1, 3, 10 and 12.

17. A communication device comprising:  
a transmitting circuit;  
a receiving circuit; and  
an antenna-sharing device comprising a pair of  
5 filters each including a first and a second terminal;  
the first terminals of the filters being connected together; and  
the second terminals of the filters being  
connected respectively to said transmitting circuit  
10 and said receiving circuit.